

CLAIMS

- 1) An aqueous or aqueous-alcoholic crease-resistant formulation comprising at least one cationic surfactant (CSA), for the treatment after washing
5 in aqueous or aqueous-alcoholic medium of articles made of textile fibers, said formulation being characterized in that it also comprises at least one copolymer of controlled architecture (C) that is soluble or dispersible in aqueous or aqueous-alcoholic medium, compatible with the surfactant (CSA) at the pH of said formulation and at the pH of use of said formulation, and comprising
 - 10 • at least one hydrophobic organic polymer block B, which is essentially nonionic, and
 - at least one ionic or ionizable organic polymer block A,
 - the weight ratio: set of blocks B/set of blocks A ranging from 0.01 to 1 and preferably from 0.1 to 1,
 - 15 said copolymer of controlled architecture (C) being present in the formulation in an amount that can give said articles properties of crease resistance and/or ease of ironing.
 - 2) The formulation as claimed in claim 1), characterized in that the
20 copolymer (C) is a block copolymer, a branched copolymer or a star copolymer.
 - 3) The formulation as claimed in claim 1) or 2), characterized in that the copolymer (C) is a block copolymer comprising two or three blocks.
 - 25 4) The formulation as claimed in claim 3), characterized in that the copolymer (C) is a diblock copolymer.
 - 5) The formulation as claimed in any one of claims 1) to 4), characterized in that the blocks A and B are derived from ethylenically unsaturated monomers.
 - 30 6) The formulation as claimed in any one of claims 1) to 5), characterized in that the block B is derived from at least one hydrophobic nonionic monomer, and optionally from at least one hydrophilic nonionic monomer and/or optionally from at least one ionic monomer, the amount of optional monomer(s) preferably not exceeding 10 mol% of all the monomers.

7) The formulation as claimed in any one of claims 1) to 6), characterized in that the block B has an average molecular mass of from 500 to 100 000, and preferably from 500 to 25 000 g/mol.

5 8) The formulation as claimed in any one of claims 1) to 7), characterized in that the polymer constituting the block A is chosen from

- a) polymers derived from at least one hydrophilic monomer that is potentially cationic at the pH of the formulation or of use of the formulation and/or at least one cationic hydrophilic monomer, and optionally of at least one nonionic monomer;
- b) polymers derived from at least one zwitterionic hydrophilic monomer and optionally from at least one nonionic monomer.

15 9) The formulation as claimed in claim 8), characterized in that the block A also contains at least one anionic or potentially anionic unit derived from at least one anionic or potentially anionic monomer.

20 10) The formulation as claimed in claims 8) or 9), characterized in that the block A has an average molecular mass of from 500 to 100 000, and preferably from 500 to 25 000 g/mol.

25 11) The formulation as claimed in any one of claims 1) to 10), characterized in that the hydrophobic block B is nonionic and in that the ionic or ionizable block A has an overall charge that is zero or not opposite that of the cationic surfactant (CSA) at the pH of the formulation or of use of the formulation.

30 12) The formulation as claimed in any one of claims 1) to 11), characterized in that the copolymer (C) has a number-average molecular mass of from 1000 to 200 000, preferably from 1000 to 50 000 g/mol and more particularly from 3000 to 30 000.

13) The formulation as claimed in any one of claims 1) to 12), characterized in that the copolymer (C) is a diblock copolymer

- polybutyl acrylate – optionally quaternized poly(2-dimethylaminoethyl acrylate)
- polybutyl acrylate – poly(acrylic acid-stat-quaternized 2-dimethylaminoethyl acrylate).

14) The formulation as claimed in any one of claims 1) to 13), characterized in that said cationic surfactant (CSA) is either a cationic surfactant or a mixture of cationic surfactants, and also a mixture of at least one cationic surfactant and of at least one nonionic surfactant.

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15) The formulation as claimed in claim 14), characterized in that the cationic surfactant is optionally softening.

16) The formulation as claimed in claim 14) or 15), characterized in that the optional nonionic surfactant represents up to 70% of the weight of the cationic surfactant (CSA).

17) The formulation as claimed in any one of claims 1) to 16), characterized in that said cationic surfactant (CSA) represents from 1% to 60% of the weight of the formulation.

18) The formulation as claimed in any one of claims 1) to 17), characterized in that the mass ratio of copolymer of controlled architecture (C)/mass of surfactant (CSA) ranges from 0.0001 to 10 and preferably from 0.001 to 2.

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19) The formulation as claimed in any one of claims 1) to 18), characterized in that it is intended for the post-washing treatment of laundry, especially cotton-based laundry, in particular containing at least 35% cotton.

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20) The formulation as claimed in any one of claims 1) to 19), characterized in that it has a pH of from 2.5 to 11.

21) The formulation as claimed in any one of claims 1) to 20), characterized in that it is intended for the post-washing rinsing of articles made of textile fibers.

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22) The rinsing formulation as claimed in claim 21), characterized in that it has a dry extract of from 10% to 50%.

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23) the rinsing formulation as claimed in claim 21) or 22), characterized in that it has a pH of from 2.5 to 11.

24) The rinsing formulation as claimed in any one of claims 21) to 23), characterized in that the mass ratio of copolymer of controlled architecture

(C)/mass of surfactant (CSA) ranges from 0.0001 to 1, preferably from 0.0001 to 0.5 and most preferably from 0.0001 to 0.1.

25) The formulation as claimed in any one of claims 1) to 20), characterized
5 in that it is intended for the ironing of articles made of textile fibers.

26) The ironing formulation as claimed in claim 25), characterized in that it
has a dry extract of from 0.5% to 2%.

10 27) The ironing formulation as claimed in claim 25) or 26), characterized in
that it has a pH of from 5 to 9.

15 28) The ironing formulation as claimed in any one of claims 25) to 27),
characterized in that the mass ratio of copolymer of controlled architecture
(C)/mass of surfactant (CSA) ranges from 0.0001 to 2.

20 29) The use, in an aqueous or aqueous-alcoholic formulation comprising at
least one cationic surfactant (CSA), for the post-washing treatment of articles
made of textile fibers, of at least one copolymer of controlled architecture (C) that
is soluble or dispersible in aqueous or aqueous-alcoholic medium, compatible
with the surfactant (CSA) at the pH of said formulation and at the pH of use of
said formulation, and comprising

- at least one hydrophobic organic polymer block B, which is essentially
nonionic, and

25 • at least one ionic or ionizable organic polymer block A,
the weight ratio: set of blocks B/set of blocks A ranging from 0.01 to 1 and
preferably from 0.1 to 1,
as an agent for giving said articles properties of crease resistance and/or ease of
ironing.

30 30) The use as claimed in claim 29), characterized in that said copolymer
(C), said surfactant (CSA) and said treatment formulation are as defined in any
one of claims 2) to 13), 14) to 18) and 19) to 28).

35 31) A process for improving the properties of crease resistance or ease of
ironing of an aqueous or aqueous-alcoholic formulation comprising at least one
cationic surfactant (CSA), for the post-washing treatment of articles made of
textile fibers, by addition to said formulation of at least one copolymer of

controlled architecture (C) that is soluble or dispersible in aqueous or aqueous-alcoholic medium, and that is compatible with the surfactant (CSA) at the pH of said formulation and at the pH of use of said formulation, and comprising

- at least one hydrophobic organic polymer block B, which is essentially nonionic, and
- at least one ionic or ionizable organic polymer block A,

the weight ratio: set of blocks B/set of blocks A ranging from 0.01 to 1 and preferably from 0.1 to 1,

as an agent for giving said treated articles properties of crease resistance and/or ease of ironing.

32) The process as claimed in claim 30), characterized in that said copolymer (C), said surfactant (CSA) and said treatment formulation are as defined in any one of claims 2) to 13), 14) to 18) and 19) to 28).